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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,429	03/31/2004	Richard Hsiao	HIT1P041B/SJ0920010089US3	7633

50535 7590 04/13/2007

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EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	PAPER NUMBER
3729	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

ED

Office Action Summary	Application No.	Applicant(s)	
	10/815,429	HSIAO ET AL.	
	Examiner	Art Unit	
	A. Dexter Tugbang	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *20-24* is/are withdrawn from consideration.

5)☒ Claim(s) *1,3-13 and 17* is/are allowed.

6)☒ Claim(s) *2,18 and 19* is/are rejected.

7)☒ Claim(s) *14-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicant(s) amendment filed on January 16, 2007 has been fully considered and made of record.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Claims 1, 3 through 13 and 17 are allowable for the reasons noted below. The election of species requirement between Species A through D, as set forth in the Office action mailed on August 15, 2006 (note paragraph 4), has been reconsidered in view of the allowability of generic claim 1 in the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.**

Claims 7 through 9, directed to Species B through D are no longer withdrawn from consideration because the claim(s) requires all the limitations of an allowable claim (e.g. generic Claim 1).

However, Claims 20 through 24, directed to the invention of Group II continue to stand as being withdrawn from consideration because the invention of Group II is directed to product claims, which do not require all the limitations of an allowable claim.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may

be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Claim Rejections - 35 USC § 103

4. Claims 2, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Wei et al.

The AAPA (specification, pages 1-3 and Prior Art Figures 1 and 2) discloses a process of making a pole or coil structure comprising: depositing a conductive layer (e.g. 106) of Cu; depositing a photoresist layer (e.g. 108) on the conductive layer; forming a channel in the photoresist layer; and filling the channel with a conductive material (e.g. 110, 111) to define a coil structure.

The AAPA does not teach depositing a silicon dielectric layer on the photoresist layer; masking the silicon dielectric layer; and etching at least one channel in both the photoresist layer and the silicon dielectric layer.

Wei discloses a patterning process that includes depositing a silicon dielectric layer (e.g. 64); masking the silicon dielectric layer (with mask 65); and etching at least one channel in the photoresist layer and the silicon dielectric layer (see sequence of Figs. 7 to 8). The patterning process of Wei is to provide the channel to fill the channel with a conductive material (e.g. 423).

It is noted that both the AAPA and Wei teach art recognized equivalent processes of forming at least one channel to pattern and fill it with a conductive material.

Regarding Claim(s) 19, Wei further teaches that the conductive material can be one of a magnetic material, or a magnetic pole P2 tip structure (col. 4, lines 7-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the AAPA by including the patterning process of Wei, to perform an art recognized equivalent process of filling a channel with conductive material to provide a patterned conductive material.

Response to Arguments

5. The applicant(s) arguments, see pages 12 to 17 of the response filed on January 16, 2007, with respect to the features of the "aspect ratio" and the "grain size", have been fully considered and are persuasive. Since the features of the aspect ratio size and the grain size are specifically recited in each of Claims 1, 14 and 15, the prior rejections of Claims 1, 14 and 15, each have been withdrawn.

The examiner notes that aspect ratio is well known in the art as to the reference of the ratio of height to width. In this case, the applicant(s) are correct to note that the aspect ratio (height/width) of the at least one channel being about 7 is not taught by the prior art.

Additionally regarding the "grain size", the examiner's position is that the conductive material (e.g. Cu) deposited into the one channel inherently has a grain size. The textbook cited to Smith show that metals inherently have a grain (crystal structure) size. However, the AAPA

and the prior art do not state what the grain (e.g. crystal) size **is** relative to *half* of a smallest dimension of the at least one channel.

6. The applicant(s) arguments with respect to Claims 2, 18 and 19 and the combination of the AAPA and Wei et al, have not been found to be persuasive the rejections are maintained for the following reasons.

In response to the applicant(s) argument that Wei utilizes additional processing steps, thus changing the operation of the AAPA, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Both the AAPA and Wei et al are concerned with solving problems associated with forming at least one channel to pattern and fill it with a conductive material. So the examiner's position is that the modification of the AAPA in view of Wei would be proper in order to solve this very same problem and would therefore be obvious.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Allowable Subject Matter

7. Claims 1, 3 through 13 and 17 are allowed.

8. Claims 14 through 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A. Dexter Tugbang
Primary Examiner
Art Unit 3729

April 2, 2007